

KELLY (H.A.)

A LETTER TO MY ASSISTANT
ON THE
METHODS OF SECURING ASEPSIS

IN THE PREPARATION OF
INSTRUMENTS, LIGATURES, AND DRESSINGS
IN MY PRIVATE OFFICE.

BY
HOWARD A. KELLY, M.D.,
Professor of Gynecology and Obstetrics in the Johns Hopkins University.

[Reprinted from the AMERICAN JOURNAL OF OBSTETRICS AND DISEASES
OF WOMEN AND CHILDREN, Vol. XXV, No. 2, 1892.]

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Difficulties in the Way.—As you daily observe in my clinic at the hospital, the work of preparing for operations has acquired the simplicity of all routine duties. To this end a specially constructed room is fitted with the many facilities called for in securing an aseptic technique and maintaining it throughout the various gynecological operations performed there. To this end there are a large number of porcelain and glass vessels, glass-top instrument tables, and basins with a superabundance of sterile hot and cold water, large glass storage jars, steam sterilizers, metal and glass-top operating table, while the room itself is so constructed, with its hard, bare walls, rounded corners, and tile floor, that any amount of water can be poured over its surface at any moment without inconvenience.

In a private house, on the other hand, you have noted the difficulty of appropriating a special room to such a purpose, and, owing to the presence of carpets and dry air in dwelling houses, and proximity to the street, the very atmosphere is relatively loaded with dust. The abundance of sterile water conveniently disposed for use on hands or instruments is notably absent, and in the necessity for repeated contacts with

substances whose status (bacteriologically) is outside our ken lies a constant source of danger liable at any moment to negate our previous efforts. Among the inconsistencies which thus seem a necessary part of this environment are, for example, the frequent handling of the water pitchers, turning on the spigot, opening doors, pulling out drawers, unlocking cases, lifting off covers, picking up basins, laying towels down on table or chair, etc. In short, the crucial difference lies in the fact that in the hospital room everything connected with the immediate preparation for the operation is absolutely free from suspicion, while all other articles lying just outside this range are comparatively safe. In private, on the other hand, the feeling that the work is being so differently conducted, under circumstances so suspicious, hangs like the pall of a heavy sin upon the conscience, to which, in its morbid sensitiveness, every contact seems loaded with infection.

It is now my object in this letter to instruct you how such preparations may be conducted at home as thoroughly as in the hospital.

In the first place, it is important that every article which may be wanted should be close at hand where it can be reached in a moment without opening doors, unlocking cases, or undoing packages. It is, therefore, important to carry out the whole work of preparation in one room, unfurnished and with a bare floor, which must be wholly or almost entirely given up to this purpose.

It is safer to keep instruments, etc., in an instrument case, suitably packed, ready to be picked up at once when the call comes to operate. No instruments or dressings can be considered aseptic which have been gathered in haste from shelves and closet to meet an urgent call.

The only consistent course is previous careful preparation at a time when you are not hurried.

I will describe the preparations I wish you to make under three headings:

- (a) Getting ready to sterilize the instruments and dressings.
- (b) Sterilizing hands, instruments, and dressings.
- (c) Storing away the sterilized instruments and dressings.

(a) *Getting Ready*.—Take off your coat, roll your sleeves above the elbows, and put on a clean white apron. Scrub

your hands vigorously with soap and water for a minute, then proceed to arrange cases, boxes, packages, tables, basins, pitchers, so that you will be able to put your hands at once on every article wanted, with the least possible amount of contact with any other substance whatever. Every unnecessary contact of this sort you will look upon as a contamination and a technical error on your part, one which, in its consequences, *may prove most serious*.

It is true that the chances that any single contamination will be applied directly to the patient, and that that contamination will chance to carry pathogenic micro-organisms, is very small, but you are now dealing with principles and dare take no liberties. Moreover, I have observed that only those operators and assistants have a proper idea of the relations of micro-organisms to wound infection who strenuously endeavor to preserve an ideal aseptic condition throughout. There are no half-way operators. It is further remarkable how slow good theorists are in thus giving practical expression to the creed they profess.

Time and constant immersion in the work alone develop a technique, constantly under the keen criticism of the worker himself, which is at length perfect. This works coincidentally a wondrous change in the mental attitude towards the paraphernalia of an operation, best designated as an antiseptic conscience.

As soon as you have given your hands the preliminary washing spoken of, make the following arrangements so that you can go ahead without delay. On the low bench, eight feet long, place four basins, the soap box, and a shallow dish containing the hand brushes floating in a five-per-cent carbolic acid solution, and another with squares of gauze (six inches) for catching hold of handles, etc. Fill the large agate-ware reservoir with six gallons of hot water, and place by the bench the large nine-gallon reservoir of agate-ware for the waste water.

Close by stands a common kitchen table with a plate-glass top, and by this stands the instrument case wide open. The sterilizer (Arnold's) is on a stand in one corner. Proceed by filling basin No. 1 with hot water (110° to 115° F.). Make five hundred cubic centimetres saturated solution of potas-

sium permanganate (five per cent) in basin No. 2, and a saturated solution of oxalic acid in basin No. 3, and add plain hot water again to basin No. 4.

(b) *The Sterilization.*—From this time on you must be very careful. Scrub the hands for five minutes (measured by the clock) in basin No. 1, changing the water three or four times. Then take the instruments out of the case and place them in a large oval basin on the bench, and scrub them thoroughly in hot water with sapolio. Finally rinsing them with

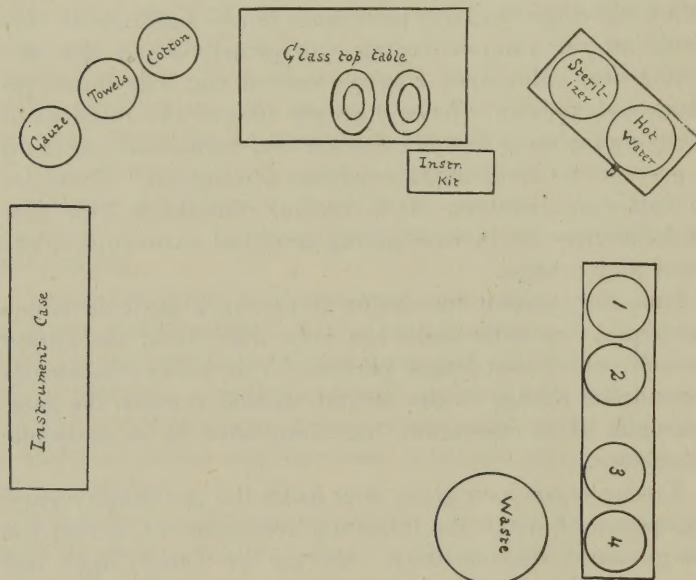


Figure showing arrangement of room in private house for sterilization and preservation of instruments and dressings.

warm water, lay them, still wet, on a clean towel on the glass-top table.

If it is necessary to prepare ligatures for the next operation, they should now be unwound from the skein, and cut and wound on glass reels, and put in the author's extra-heavy glass tubes lightly corked with cotton (after Dr. Halstead's method), or in stout little muslin bags with a draw-string, ready to be placed in the steam sterilizer. The ligatures ought not, however, to be handled at the same time the instruments are cleansed and sterilized. They should be

prepared previously alone and in bulk, enough to last several weeks or longer. Sponges should also be prepared in quantity at a special time when no other work is on hand. The sterilizer should have been started by pouring sufficient hot water in the pan just before beginning to wash up.

The instruments wrapped in a towel, the ligatures in glass tubes with loose cotton stoppers, bandage and cotton, should now be placed in the sterilizer, together with some bags about to be described, laid in a larger bag, and the cover of the sterilizer put on. They are now left steaming for a half-hour, taking care that the water does not boil out, leaving a dry pan.

In the sterilized bags mentioned, the instruments, cotton, and bandage and towels are placed after sterilization, and stored in the operating kit or satchel. They remain thus in the satchel and in the bags, as it were hermetically sealed, until the draw-string is loosened and they are taken out at the operation at the patient's house.

I consider the use of these bags a very important addition to my technique in private practice. They are made of heavy butcher's linen, twelve by six and twelve by eight inches. A number of them are rolled up and put in two or more large bags at the time the ligatures are sterilized, and when bags are wanted for use the large bag is opened and several are taken out. By preparing them beforehand we thus avoid storing the instruments in damp bags just taken out of the sterilizer. From six to a dozen towels are sterilized in like manner and kept in bags also, to be taken out when wanted, either in the preparation room or at the operation. They are thus preserved just like the ligatures. The cotton, bandage, and towels, if sterilized with the instruments, should not at once be packed away with them, but should be put in these bags on a shelf in the case, and the dry dressings prepared at a previous time taken out and put in the kit; if necessary, these dressings may remain on the shelves over night and be put in the operating case the following morning.

While the steam sterilization is going on the assistant should completely disinfect his hands by immersion in the saturated solution of permanganate of potash until they are stained a uniform deep-red color, then at once decolorize with

the oxalic acid solution and wash this off in the last basin of hot water. After one-half hour the instruments are lifted out of the sterilizer while steaming hot, as they then rapidly dry of themselves. Lay them on a towel on the glass top table, and dry them carefully with a sterilized towel, looking particularly to the joints, leaving no trace of moisture.

(c) *Packing Away*.—Finally lay them in the dry sterilized bags, arranging artery forceps (if numerous) in one small bag, larger instruments in one or two others, and knives in a little metal case. The cotton, bandage, and towels are already in closed bags. Lay a sterilized towel in bottom of the telescope case, which is the best sort of a portable instrument case; put everything in and lay a towel over the top, and close the telescope, when all is in readiness to be picked up the moment a call comes to proceed to the operation.¹

¹These telescope bags are very cheap and most serviceable. They cost from \$1.20 to \$1.60, according to size.

